

Patent claims

1. Polymer beads comprising an anisotropic polymer material with helically twisted structure.
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2. Polymer beads according to claim 1, having an average diameter from 0.5 to 100 μm .
3. Polymer beads according to claim 1, having an average diameter from 1 to 20 μm .
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4. Polymer beads according to claim 1, wherein the anisotropic polymer material is a linear or crosslinked cholesteric side chain polymer.
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5. Polymer beads according to claim 1, wherein the anisotropic polymer material forms a three-dimensional network.
6. Polymer beads according to claim 1, wherein the polymer beads exhibit selective reflection of circularly polarized light, with the central wavelength of reflection being in the range from 200 to 1000 nm.
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7. Polymer beads according to claim 6, wherein the reflected wavelength is substantially independent of the viewing angle.
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8. Polymer beads according claim 6, wherein the polymer beads reflect either left-handed or right-handed circularly polarized light.
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9. Polymer beads according to claim 1, having molecular helices in the anisotropic polymer material which exhibit partial ordering.
10. Polymer beads according to claim 1, which are obtained by emulsion, or suspension, or dispersion polymerization of
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droplets comprising a polymerizable chiral mesogenic liquid crystal material.

- 5 11. A reflective film comprising one or more polymer beads according to claim 1.
12. A reflective film according to claim 11 in a transmissive binder.
- 10 13. A reflective film according to claim 11, comprising at least two different polymer beads.
14. A reflective film according to claim 13, wherein the at least two different polymer beads reflect circularly polarized light of different handedness.
- 15 15. A security marking or a security device comprising one or more polymer beads according to claim 1.
16. A document comprising a security mark according to claim 15.
- 20 17. A spraying or printing ink, or a pigment comprising polymer beads according to claim 1.
18. A cosmetic product comprising polymer beads according to claim 1.
- 25 19. An active or passive optical element comprising polymer beads according to claim 1.
- 30 20. A plastic comprising polymer beads according to claim 1.
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